

SHEET 1 OF 6

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)	ATTY. DOCKET NO. 081117-0126	SERIAL NO. 10/727,655
	APPLICANT SZELENYI, Istvan et al.	
	FILING DATE December 5, 2003	GROUP 1614

U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	CITE NO.	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	US 4,554,281	11-19-1985	vonBebenburg et al.	
	2.	US 4,923,858	05-08-1990	Engel et al.	
	3.	US 5,032,591	07-16-1991	Evans et al.	
	4.	US 5,234,947	08-10-1993	Cherksey	
	5.	US 5,262,419	11-16-1993	Aberg et al.	
	6.	US 5,428,039	06-27-1995	Cohen	
	7.	US 5,643,921	07-01-1997	Grover	
	8.	US 5,679,706	10-21-1997	D'Alonzo et al.	
	9.	US 5,800,385	09-01-1998	Demopulos et al.	
	10.	US 5,858,017	01-12-1999	Demopulos et al.	
	11.	US 5,860,950	01-19-1999	Demopulos et al.	
	12.	US 5,914,425	06-22-1999	Meisel et al.	
	13.	US 6,218,411	04-17-2001	Koga	
	14.	US 6,265,417	07-24-2001	Carroll	
	15.	US 6,326,385	12-04-2001	Wickenden et al.	
	16.	US 6,395,736	05-28-2002	Parks et al.	
	17.	US 6,469,042	10-22-2002	Hewawasam et al.	
	18.	US 6,495,550	12-17-2002	McNaughton-Smith et al.	
	19.	US 6,538,004	03-25-2003	Drizin	
	20.	US 6,538,151	03-25-2003	Meisel et al.	
	21.	US 6,589,986	07-08-2003	Bowlby et al.	
	22.	US 6,593,335	07-15-2003	Carroll	
	23.	US 6,737,422	05-18-2004	McNaughton-Smith et al.	
	24.	US 7,045,551	05-16-2006	Wu et al.	
	25.	US 7,160,684	01-09-2007	Argentieri et al.	
	26.	US 7,309,713	12-18-2007	Rundfeldt et al.	
	27.	US 2002/0013349	01-31-2002	Wickenden	
	28.	US 2002/0015730	02-07-2002	Hoffmann et al.	
	29.	US 2002/0183395	12-05-2002	Argentieri	
	30.	US 2004/0198724	10-07-2004	McNaughton-Smith et al.	

EXAMINER	DATE CONSIDERED
----------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

** This reference is not attached. Will provide under separate cover.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /B.Y./

SHEET 2 OF 6

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)	ATTY. DOCKET NO. 081117-0126	SERIAL NO. 10/727,655
	APPLICANT SZELENYI, Istvan et al.	
	FILING DATE December 5, 2003	GROUP 1614

	31.	US	2005/0089473	04-28-2005	Black et al.	
	32.	US	2005/0089559	04-28-2005	Szelenyi	
	33.	US	2005/0090547	04-28-2005	Szelenyi	
	34.	US	2005/0202394	09-15-2005	Dobson	
	35.	US	2005/0277579	12-15-2005	Krishnan et al.	
	36.	US	2007/0066612	03-22-2007	Khanzhin et al.	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS	CITE NO.	Foreign Patent Document Country Codes - Number 4 - Kind Codes (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Figures Appear	Translation	
						Yes	No
	37.	DE 3337593 (English translation of this reference is provided herewith as U.S. Patent No. 4,554,281)	10-15-1983	vonBebenburg et al.		X	
	38.	EP 1 334 972	08-13-2003	Anderson et al.			
	39.	EP 0 343 429 (English translation of this reference is provided herewith as U.S. Patent No. 4,923,858)	05-10-1989	Engel et al		X	
	40.	WO 00/55137	09-21-2000	Bhagwat et al.			
	41.	WO 01/01970	01-11-2001	Burbidge			
	42.	WO 01/09612	02-08-2001	Rundfeldt			
	43.	WO 02/080898	10-17-2002	Argentieri			
	44.	WO 03/020706	03-13-2003	Bavetsias, V.			
	45.	WO 03/097586	11-27-2003	Codd et al.			
	46.	WO 04/058739	07-15-2004	Rottländer et al.			
	47.	WO 04/080950	23-09-2004	Greve et al.			
	48.	WO 04/082677	09-30-2004	Khanzhin et al.			
	49.	WO 04/096767	11-11-2004	Khanzhin et al.			
	50.	WO 04/105795	12-09-2004	Buhr et al.			
	51.	WO 05/048975	06-02-2005	Fabregas Vidal et al.			
	52.	WO 05/087754	09-22-2005	Tornøe et al.			

EXAMINER	DATE CONSIDERED
----------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

** This reference is not attached. Will provide under separate cover.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /B.Y./

SHEET 3 OF 6

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)	ATTY. DOCKET NO. 081117-0126	SERIAL NO. 10/727,655
	APPLICANT SZELENYI, Istvan et al.	
	FILING DATE December 5, 2003	GROUP 1614

	53.	WO 05/100349	10-27-2005	Wang et al.			
	54.	WO 06/029623	03-23-2006	Tornøe et al.			
	55.	WO 06/092143	09-08-2006	Tornøe et al.			
	56.	WO 08/024398	02-28-2008	Vernier et al.			
	57.	WO 08/066900	06-05-2008	Chen et al.			

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER'S INITIALS	CITE NO.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
	58.	ARMAND et al., "Effects of retigabine (D-23129) on different patterns of epileptiform activity induced by 4-aminopyridine in rat entorhinal cortex hippocampal slices," <u>Naunyn-Schmiedeberg's Arch Pharmacol</u> 359:33-39 (1999).	
	59.	ARMIGO et al., "Ion channels and epilepsy," <u>Curr Pharm Des.</u> 11:1975-2003 (2005).	
	60.	BARHANIN, M., et al., "K _v LQT1 and ISK (minK) proteins associate to form the I _{Ks} cardiac potassium current," <u>Nature</u> 384(6604):78-80 (1996).	
	61.	BEEBY et al. "The synthesis and properties of 2:7-Disubstituted 1:2:3:4-tetrahydroisoquinolines," <u>J. Chem. Soc.</u> ¶ 385, 1799-1803 (1949).	
	62.	BIALER et al., "Progress report on new antiepileptic drugs: a summary of the fourth Eilat conference (EILAT IV)," <u>Epilepsy Res.</u> 34:1-41 (1999).	
	63.	BIALER, "Progress report on new antiepileptic drugs: a summary of the Sixth Eilat Conference (EILAT VI)," <u>Epilepsy Res.</u> 51:31-71 (2002).	
	64.	BIALER, "Progress report on new antiepileptic drugs: a summary of the Seventh Eilat Conference (EILAT VII)," <u>Epilepsy Res.</u> 61:1-48 (2004).	
	65.	BIERVERT et al., "A potassium channel mutation in neonatal human epilepsy," <u>Science</u> 279:403-406 (1998).	
	66.	BLACKBURN-MUNRO and JENSEN, "The anticonvulsant retigabine attenuates nociceptive behaviours in rat models of persistent and neuropathic pain," <u>Eur J Pharmacol.</u> 460: 109-116 (2003).	
	67.	BROWN and ADAMS, "Muscarinic suppression of a novel voltage-sensitive K ⁺ current in a vertebrate neurone," <u>Nature</u> 283:673-676 (1980).	
	68.	BROWN, D.A., <i>Ion Channels</i> , T. Narahashi, Ed. (Plenum Press, New York) pp. 55-94 (1988).	
	69.	CHARLIER et al., "A pore mutation in a novel KQT-like potassium channel gene in an idiopathic epilepsy family," <u>Nat Genet.</u> 18:53-55 (1998).	
	70.	COOPER et al., "Colocalization and coassembly of two human brain M-type potassium channel subunits that are mutated in epilepsy," <u>Proc Natl Acad Sci USA</u> 97:4914-4919 (2000).	
	71.	DELMAS and BROWN, "Pathways modulating neural KCNQ/M (Kv7) potassium channels," <u>Nat Rev Neurosci.</u> 6:850-862 (2005).	

EXAMINER	DATE CONSIDERED
----------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

** This reference is not attached. Will provide under separate cover.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /B.Y./

SHEET 4 OF 6

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)	ATTY. DOCKET NO. 081117-0126	SERIAL NO. 10/727,655
	APPLICANT SZELENYI, Istvan et al.	
	FILING DATE December 5, 2003	GROUP 1614

72.	DICKENSON et al., "Neurobiology of neuropathic pain: mode of action of anticonvulsants," <u>Eur. J. Pain</u> 6:51-60 (2002).	
73.	DOST et al., "The anticonvulsant retigabine potently suppresses epileptiform discharges in the low Ca ++ and low Mg++ model in the hippocampal slice preparation," <u>Epilepsy Res.</u> 38:53-56 (2000).	
74.	FRIEDEL and FITTON, "Flupirtine: a review of its analgesic properties, and therapeutic efficacy in pain states," <u>Drugs</u> 45:548-569 (1993).	
75.	HILLER et al., "Retigabine N-glucuronidation and its potential role in enterohepatic circulation," <u>Drug Metab Dispos.</u> 27(5):605-612 (1999).	
76.	HUNT and MANTYH, "The molecular dynamics of pain control," <u>Nat Rev Neurosci.</u> 2:83-91 (2001).	
77.	JENTSCH, "Neuronal KCNQ potassium channels; physiology and role in disease," <u>Nat. Rev Neurosci.</u> 1:21-30 (2000).	
78.	JIANG et al., "X-ray structure of a voltage-dependent K ⁺ channel," <u>Nature</u> 423:33-41 (2003).	
79.	KHARKOVETS et al., "Mice with altered KCNQ4 K ⁺ channels implicate sensory outer hair cells in human progressive deafness," <u>EMBO J</u> 25:642-652 (2006).	
80.	KIBBE <i>Handbook of Pharmaceutical Excipients</i> (Pharmaceutical Press, London) (2000).	
81.	KUBISCH et al., "KCNQ4, a novel potassium channel expressed in sensory outer hair cells, is mutated in dominant deafness," <u>Cell</u> 96:437-446 (1999).	
82.	LAMAS et al., "Effects of a cognition-enhancer, linopirdine (DuP 996), on M-type potassium currents (I _{K(M)}) and some other voltage- and ligand-gated membrane currents in rat sympathetic neurons," <u>Eur. J Neurosci.</u> 9:605-616 (1997).	
83.	LEE et al., "Structure of the KvAP voltage-dependent K ⁺ channel and its dependence on the lipid membrane," <u>Proc Natl Acad Sci USA</u> 102:15441-15446 (2005).	
84.	LONG et al., "Crystal Structure of a mammalian voltage-dependent <i>Shaker</i> family K ⁺ channel," <u>Science</u> 309:897-903 (2005).	
85.	MAIN et al., "Modulation of KCNQ2/3 potassium channels by the novel anticonvulsant retigabine," <u>Mol. Pharmacol.</u> 58:253-262 (2000).	
86.	MARRION, "Control of M-currents," <u>Annu Rev Physiol.</u> 59:483-504 (1997).	
87.	PARCEJ and ECKHARDT-STRELAU, "Structural characterization of neuronal voltage-sensitive K ⁺ channels heterologously expressed in <i>Pichia pastoris</i> ," <u>J Mol Biol</u> 333:103-116 (2003).	
88.	PASSMORE et al., "KCNQ/M currents in sensory neurons: significance for pain therapy," <u>J. Neurosci.</u> 23:7227-7236 (2003).	
89.	PORTER et al., "Retigabine," <u>Neurotherapeutics</u> 4:149-154 (2007).	

EXAMINER	DATE CONSIDERED
----------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

** This reference is not attached. Will provide under separate cover.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /B.Y./

SHEET 5 OF 6

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)	ATTY. DOCKET NO. 081117-0126	SERIAL NO. 10/727,655
	APPLICANT SZELENYI, Istvan et al.	
	FILING DATE December 5, 2003	GROUP 1614

90.	REICH et al., "Design and synthesis of novel 6,7-imidazotetrahydroquinoline inhibitors of thymidylate synthase using iterative protein crystal structure analysis," <u>J. Med. Chem.</u> 35:847-858 (1992).	
91.	ROGAWSKI, MA, "KCNQ2/KCNQ3 K ⁺ channels and the molecular pathogenesis of epilepsy: implications for therapy," <u>Trends Neurosci.</u> 23:393-398 (2000).	
92.	ROSTOCK et al., "A new anticonvulsant with broad spectrum activity in animal models of epileptic seizures," <u>Epilepsy Res.</u> 23:211-223 (1996).	
93.	RUNDFELDT et al., "Multiple actions of the new anticonvulsant D-23129 on voltage-gated inward currents and GABA-induced currents in cultured neuronal cells (abstract)," <u>Naunyn-Schmiedeberg's Arch Pharmacol</u> 351 (Suppl):R160 (1995).	
94.	RUNDFELDT, "Characterization of the K ⁺ channel opening effect of the anti-convulsant retigabine in PC12 cells," <u>Epilepsy Res.</u> 35:99-107 (1999).	
95.	RUNDFELDT, "The new anticonvulsant retigabine (D23129) acts as an opener of K ⁺ channels in neuronal cells," <u>Eur J Pharmacol.</u> 336:243-249 (1997).	
96.	SCHROEDER et al., "KCNQ5, a novel potassium channel broadly expressed in brain, mediates M-type currents," <u>J. Biol. Chem.</u> 275:24089-24095 (2000).	
97.	SCHROEDER, "Moderate loss of function of cyclic-AMP-modulated KCNQ2/KCNQ3 K ⁺ channels causes epilepsy," <u>Nature</u> 396:687-690 (1998).	
98.	SINGH et al., "A novel potassium channel gene, KCNQ2, is mutated in an inherited epilepsy of newborns," <u>Nat Genet.</u> 18:25-29 (1998).	
99.	SUZUKI and DICKENSON, "Neuropathic pain: nerves bursting with excitement," <u>NeuroReport</u> 11:R17-R21 (2000).	
100.	TATULIAN and BROWN, "Effect of the KCNQ potassium channel opener retigabine on single KCNQ2/3 channels express in CHO cells," <u>J Physiol.</u> 549:57-63 (2003).	
101.	TATULIAN et al., "Activation of expressed KCNQ potassium currents and native neuronal M-type potassium currents by the anti-convulsant drug retigabine," <u>J. Neurosci.</u> 21:5535-5545 (2001).	
102.	TOBER et al., "D-23129: a potent anticonvulsant in the amygdala kindling model of complex partial seizures," <u>Eur J Pharmacol</u> , 303:163-169 (1996).	
103.	VON BEBENBURG et al., "Substituierte Polyaminopyridine" <u>Chemiker-Zeitung</u> 103:387-399 (1979). (German language article attached.)	
104.	WANG et al., KCNQ2 and KCNQ3 potassium channel subunits: molecular correlates of the M-channel," <u>Science</u> 282:1890-1893 (1998).	
105.	WANG et al., "Positional cloning of a novel potassium channel gene: KVLQT1 mutations cause cardiac arrhythmias," <u>Nat Genet</u> 12:17-23 (1996).	
106.	WATANBE et al., "Disruption of the epilepsy KCNQ2 gene results in neural hyperexcitability," <u>J. Neurochem</u> 75:28-33 (2000).	

EXAMINER	DATE CONSIDERED
----------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

** This reference is not attached. Will provide under separate cover.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /B.Y./

SHEET 6 OF 6

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)	ATTY. DOCKET NO. 081117-0126	SERIAL NO. 10/727,655
	APPLICANT SZELENYI, Istvan et al.	
	FILING DATE December 5, 2003	GROUP 1614

	107.	WICKENDEN et al., "KCNQ potassium channels: drug targets for the treatment of epilepsy and pain," <u>Exp. Opin Thera Patents</u> 14(4): 457-469 (2004).	
	108.	WICKENDEN et al., "Retigabine, a novel anti-convulsant, enhances activation of KCNQ2/Q3 potassium channels," <u>Mol. Pharmacol.</u> 58:591-600 (2000).	
	109.	WUTTKE, "The new anticonvulsant retigabine favors voltage-dependent opening of the Kv7.2 (KCNQ2) channel by binding to its activation gate," <u>Mol. Pharmacol.</u> 67:1009-1017 (2005).	

SDO 141615-1.081117.0126

EXAMINER /Brian Yong Kwon/	DATE CONSIDERED 04/27/2009
---	--------------------------------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

** This reference is not attached. Will provide under separate cover.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /B.Y./